REMARKS

Favorable reconsideration of the above-identified application is respectfully requested in view of the amendments made herein and the following remarks.

Thus, Claims 1-5 and 7-33 are pending in this application, with Claims 1, 13, 14, 17-19, 24 and 29 being independent.

Examiner Milia is thanked for indicating that Claims 1-5 and 7-18 are allowed.

Thus, Claims 19-33 are the only claims at issue, with Claims 19, 24 and 29 being independent.

The Official Action rejects Claims 19, 20, 22, 24, 25, 27, 29, 30 and 32 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,960,109 to Shiau, hereinafter *Shiau*, in view of Japanese Patent Document No. 06-195421 to Arakawa, hereinafter *Arakawa*.

Page 2 of the present application describes some problems associated with extraction of line graphics from raster data such as handling of the information concerning the color within an enclosed area surrounded by a line graphic. For example, if the color of an enclosed area that is surrounded by a black contour line is green, the prior art was not capable of handling the vector data generated along the black contour line and the information concerning the color (*e.g.*, green) within the enclosed area as a package. That is, while the prior art could show line graphics that were extracted from raster data as vector data, it was not able to store the information concerning the colors of enclosed areas related to the vector data. Accordingly, it could not recreate the colors of the enclosed areas surrounded by the line graphics using the vector data, thus reducing the usefulness of the data.

Another problem with the prior art was that it extracts line graphics without taking line width into consideration. Figure 22 shows that when the prior art

extracted a line graphics from raster data and executed vector conversion, it generated two enclosed areas, namely one that is surrounded by the outer edge of the frame line and another that is surrounded by the inner edge of the frame line. Therefore, when the line graphics were enlarged the line width was enlarged, and when the line graphics were shrunken the line width became smaller, which was undesirable.

Page 11 of the present application discusses an embodiment of an image processing unit that addresses those issues. The image processing unit 7 includes an area-identifying unit 19, a character recognition unit 21, a vector conversion unit 23, an enclosed area detection unit 27, a color detection unit 29, a copy image-processing unit 35, and a synthesizing unit 37. Specifically, the vector conversion unit 23 extracts line graphics that include lines and/or curves and generates vector data along the line graphics. In other words, the line graphics are lines or curves represented by raster data. The vector conversion unit contains a line width-detecting unit 25 that detects line width of the line graphics. The enclosed area extracting unit 27 extracts one or more enclosed areas surrounded by the extracted line graphics. The color-detecting unit 29 detects not only the information concerning the colors of the line graphics but also the information concerning the colors inside the enclosed areas surrounded by the extracted line graphics, so that the detected color information can be handled as one image data.

It is important to understand that Figure 15(A) in the present application shows raster data that includes an inside area (white) that is surrounded by a line graphic (black), and that the line graphics referred to in the application are not

merely edges of color areas, but rather graphic lines that are defined within the raster data.

Rejection of Claims 19, 20, 22, 24, 25, 27, 29, 30 and 32

Claims 19, 20, 22, 24, 25, 27, 29, 30 and 32 are rejected as being unpatentable over *Shiau* in view of *Arakawa*.

Shiau discloses a single pass marker detection system. Basically, *Shiau* discloses detecting an area that is encirlced in marker by a user on a scanned document. To do this, *Shiau* first detects the marker pixels representing the marker color. Column 10, lines 48-54, in *Shiau* states that: "[a]n image color analyzer 5 is also connected to the scanner 1 to determined if the data being outputted by the scanner 1 corresponds to a color marker. The result of the image color analysis carried out by the image color analyzer is stored in a marker buffer 6 which is connected to a thinning circuit 8 that analyzes the data within the marker buffer..." Next, *Shiau* discloses that the marker pixels are thinned and that the area encircled by the marker and the area not encircled by marker are identified. Column 10, lines 59-62 recites: "a crossing circuit 7 which analyzes the thinned marker data to determine which pixels are within the marker area and which pixels are outside the marker area." The overall result is an image including exterior pixels, thinned marker pixels, and interior pixels (column 15, line 49). *Shiau* does not disclose vector data.

Arakawa deals with raster image data that is created by a graphics computer or that is created by a scanner. According to *Arakawa*, raster image data is difficult to expand or scale (paragraph [0011]) because raster data is made up of a conglomeration of pixels having color. However, if the outline of an area of raster

data is defined by a vector, the area of raster data becomes easier to move, amplify, expand/shrink, cutback, rotate, or otherwise manipulate. Therefore, *Arakawa* discloses scanning a textile pattern having areas of color (not surrounded by line graphics) and creating border-line data corresponding to the edge of the areas of color (paragraph [0010], lines 7-9 and Fig. 5.).

Border-line data used by *Arakawa* is merely data that corresponds to the edge of a color area. Paragraphs [0017-018] of *Arakawa* refer to the process of establishing vectors as "trace processing of the border-line data." First, the raster scan of a picture is displayed and a color number of the color area is chosen. Next, the border-line data (points on the border) of the area having that color number is established. Then, the border line of the color is traced along the border-line data and vectors are established connecting the points along the border, *i.e.*, border-line data. The border-line data is neither part of one color area or the other. The border-line data is located between the color areas.

Claim 19 is amended to recite that the vector data is generated along each axis of the line graphics. Support for that subject matter can be found in at least Figure 15 and corresponding description, as each line graphic inherently includes an axis.

Claim 19 now recites an image processing apparatus comprising a processor for generating a set of data from raster image data including line graphics that form an area surrounded by the line graphics, the set of data including (1) vector data generated along each axis of the line graphics, (2) information on line widths of the line graphics, (3) information on the first color of the line graphics, and (4) information on a second color of the enclosed area.

Even assuming, *arguendo*, that it would have been obvious to modify *Shiau* in view of *Arakawa* as suggested in the Official Action, the resulting combination would still not embody Claim 19 because *Arakawa* does not disclose vector data generated along each axis of the line graphics as recited in Claim 19. As noted above, it is important to understand that *Arakawa* traces the border between color areas (Fig. 5) and does not generate a vector along an axis of a line graphic. In fact, even if *Arakawa* was combined with *Shiau*, based on the disclosure in *Arakawa*, the area adjacent to the outer perimeter of a line graphic would be traced in the same way as a color area and the purpose of generating a vector along each core of line graphics, as described in the present application, would not be accomplished. According to *Arakawa*, the border between the marker line and the surrounding area would be traced, which is noted in the present application as being a drawback of the prior art. See Figure 22 (prior art) of the present application.

For at least those reasons, even assuming, *arguendo*, that the characterization of *Shiau* and *Arakawa* are accurate, *Shiau* and *Arakawa*, as relied upon in the Official Action fail to disclose or suggest each and every feature defined by Claim 19 and the rejection should be withdrawn.

Claims 24 and 29 are similarly amended and are allowable for similar reasons as those set forth with regard to Claim 19.

Claims 20, 22, 25, 27, 30 and 32 are allowable at least by virtue of their dependence from Claims 19, 24 and 29 respectively.

Claims 21, 23, 26, 28, 31 and 33

Claims 21, 23, 26, 28, 31 and 33 are rejected as being unpatentable over *Shiau* in view of *Arakawa* and further in view of various secondary references, which are relied upon for a disclosure of the subject matter recited in the dependent claims. Therefore, the rejections of the independent claims that Claims 19, 24 and 29 are not remedied and those dependent claims are therefore allowable for at least the same reasons.

Conclusion

For at least the reasons stated above, it is requested that all the rejections be withdrawn and that this application be allowed in a timely manner.

Should any questions arise in connection with this application, or should the Examiner feel that a teleconference with the undersigned would be helpful in resolving any remaining issues pertaining to this application, the undersigned respectfully request that he be contacted at the number indicated

Respectfully submitted,

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